DOCUMENT RESUME

ED 261 389 CS 209 260

AUTHOR Steinberg, Erwin R.
TITLE A Program for Improving Documentation. CDC Technical Report No. 6.
INSTITUTION Carnegie-Mellon Univ., Pittsburgh, PA. Communications Design Center.
REPORT NO CDC-TR-6
PUB DATE Mar 85
NOTE 14p.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Business; Business Communication; Business English; Communication Skills; *Guides; *Language Usage; *Material Development; *Program Content; Program Descriptions; *Technical Writing; Training Methods
IDENTIFIERS Language Simplification; *Program Review

ABSTRACT

A program for improving documentation at the systems division at Allen-Bradley is sketched in this paper. Following introductory material about starting the program, the paper outlines the two main projects that were involved: (1) a management study of the Allen-Bradley manual writing process, which addressed problems with the content and presentation of information in company manuals, training of technical writers, enforcement of the company's document tracking and style guidelines, and needed critical documentation; and (2) a "Handbook for Manual Writers" with chapters on planning the manual, audience analysis, composing the draft, designing the layout and graphics, testing by user edits, writing and editing, and standards of usage and style. In addition, the paper discusses briefly the style guidelines for vendors, quality control, and the seal of the Communications Design Center. (EL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED261389

CDC Technical Report No. 6

A Program for Improving Documentation

Erwin R. Steinberg

March 1985

CDC Technical Report Series

Communications Design Center

Carnegie-Mellon University
160 Baker Hall
Pittsburgh, PA 15213

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Thomas M. Duffy

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS209260

The Communications Design Center was established in 1979 to solve communication problems in business, industry, government, and the professions.

The goals of the Center are:

- to encourage interdisciplinary approaches to the solution of visual and verbal communication problems;
- to promote cooperation between communication researchers at the University and those outside the University who have practical interests in communication problems;
- to provide resources and an organizational setting for research in visual and verbal communication;
- to train professional writers, researchers, and teachers;
- to promote the development of educational materials for communication programs on and off the CMU campus.

This report is one of a series from our on-going research on communication and document design. If you have questions or comments on this report, or if you would like to find out more about the activities of the CDC, contact

Director
Communications Design Center
Baker Hall 160
Carnegie-Mellon University
Pittsburgh, PA 15213
(412) 578-2906

BEST COPY AVAILABLE

A Program for Improving Documentation

Erwin R. Steinberg
Carnegie-Mellon University

Abstract

The Communications Design Center of Carnegie-Mellon University undertook two projects for the Systems Division of Allen-Bradley:

1. A management study of the Allen-Bradley manual writing process, which addressed problems with the content and presentation of information in Allen-Bradley manuals, training of technical writers, enforcement of Allen-Bradley document tracking and style guidelines, and needed critical documentation.

2. A "Handbook for Manual Writers," with five chapters: Planning the Manual: Audience Analysis; Composing the Draft; Designing the Layout and Graphics; Testing by User Edits; Writing and Editing: Standards of Usage and Style.

The Communications Design Center helps Allen-Bradley with quality control in the manual-writing process by assigning reviewers to sample sections of manuals in draft form, comment on problems, and suggest additions or revisions. Allen-Bradley manuals carry the seal of the Communications Design Center to attest to the procedure established for drafting, testing, and editing those manuals (but not to the readability of any particular manual).

BEST COPY AVAILABLE

A Program for Improving Documentation

Erwin R. Steinberg

Getting Started

When the Communications Design Center of Carnegie-Mellon University agreed to develop a program to improve the manuals at the Systems Division of Allen-Bradley, those of us on the project spent considerable time trying to understand the division's documentation problems. We talked with the manager of commercial services, the department responsible for producing the manuals, and with the supervisors of the technical writers. We toured the plant and learned what products they made and how the products worked. We talked with people in engineering, marketing, and training. Finally, we read: we read advertising pieces, sales brochures, product data sheets, and manuals--many manuals.

We read the manuals with two purposes in mind: to prepare a two-day workshop for the technical writers who wrote the manuals and to plan a "Handbook for Manual Writers" that we had agreed to write. At this stage, "we" were two members of Carnegie-Mellon University's Communications Design Center who were also members of the university's department of English.

By the time we were ready to give the workshop, we had added to our team two graduate students enrolled in our program for the M. A. in professional writing. One of the graduate students had already completed a year in the program and had taken my course in professional and technical writing; the other had completed a semester. During the two-day workshop, the graduate students attended some sessions and spent some of the time familiarizing themselves with manual-writing problems by talking with Systems Division personnel.

A Workshop for Manual Writers

We began the workshop with a discussion of the Shannon and Weaver "Schematic Diagram of a General Communication System"[1] and the Lasswell Formula (Who, Says What, In Which Channel, To Whom, With What Effect)[2]; and we worked hard at the concept of audience. Then, using examples from the manuals, we addressed problems that we had found in them: the importance of tailoring the manual to the needs of the users; the importance of the introductory

BEST COPY AVAILABLE

section of the manual and of the introduction to each section; organization; the way style and usage affect tone and comprehension, including such matters as personal pronouns, direct address, word choice, wordiness and redundancy, active and passive voice; consistency of language; sentence and paragraph structure; and layout and design. We also discussed the methods by which the technical writers obtained their technical information and the manual-writing process, from assignment to final approval.

A Management Study

Before we co undertake writing the handbook, we were asked to do a management study of the manual-writing process. Our two graduate students spent several days at the Systems Division and then returned to write a report, the essence of which was:

I. Plain English and Document Design
   - Problems with the content and presentation of information
     - Unclear language
     - Insufficient examples
     - Lack of glossary
     - Lack of indexes
     - Poorly designed table of contents
     - Incomplete information
     - Incorrect information
     - Lack of user-oriented logic in the organization of manuals

II. Management
   - Lack of proper training
     - Technical training for writers
     - Training for all staff on principles of audience analysis

BEST COPY AVAILABLE

BEST COPY AVAILABLE

- Training for writers on how to apply principles of audience analysis

- Lack of enforcement of Allen-Bradley document tracking and style guidelines

- Lack of critical documentation

  - A text introducing the fundamentals of programmable controllers

  - Hardware compatibility charts

  - Pocket guides for use on the plant floor

  - Case studies with step-by-step descriptions of normal system configurations

The Handbook for Manual Writers

For the Handbook, we decided on five chapters:

I. Planning the Manual: Audience Analysis

II. Composing the Draft

III. Designing the Layout and Graphics

IV. Testing By User Edits

V. Writing and Editing: Standards of

- Usage
- Style

Chapter I covers:

I. Planning the Manual

1. Interviewing Engineers, Marketing and Sales Personnel, Training Center Instructors, and Customers

2. Learning to Use the Product

3. Analyzing the Manual's Prospective Audience

BEST COPY AVAILABLE

4. Constructing a Performance-Oriented Outline

5. Editing Your First Draft From the User's Perspective

6. Conclusion

We adopted the terms "performance-oriented" and "topic-oriented (the latter does not appear in the foregoing outline but does in the Handbook) from the U. S. Army's Guidebook for the Development of Army Training Literature.[3] Here are the army's definition of the two terms and accompanying examples:

> Topic-oriented writing focuses on the generalizations and concepts which constitute a body of knowledge--it tells "about" a subject area rather than telling "what to do" or "how to do it." (p. 6)

CBR: The Local Alarm

> The individual suspecting or recognizing this attack will mask first and then give the alarm. The vocal alarm for chemical agent attack will be "SPRAY" for a spray attack, and "GAS" for an attack delivered by other means. The vocal warning is intended for those individuals in the immediate vicinity of the person recognizing the attack. The vocal alarm does not take the place of the sound alarm or the visual signal to alert a unit of a chemical attack. (p.7)

> Performance-oriented writing focuses on the duties and tasks a user is expected to perform and the information he needs in order to perform these duties and tasks--it tells users "what to do" and where possible, "how to do it." (p.6)

CBR: The Local Alarm

How to Give the Local Alarm

In case of Chemical attack, use these steps to give the local alarm:

a. Put your mask on first;
b. Give a vocal alarm--
   If spray attack, say "SPRAY."
   For all other kinds, say "GAS";
c. Give the sound alarm, visual signal, or both, as directed in your Unit SOP;
d. Pass the warning to the Unit Commander as directed in your Unit SOP. (p.9)

BEST COPY AVAILABLE

BEST COPY AVAILABLE

Chapter II of the Handbook covers:

II. Composing the Draft

1. Writing Introductions
1.1. Writing General Introductions
1.1.1. Purpose
1.1.2. Audience
1.1.3. Definitions of Major Terms
1.1.4. Related Publications
1.1.5. Optional Sections in the General Introduction
1.2. Writing Chapter Introductions
2. Writing Definitions
3. Writing Descriptions
3.1. Physical Descriptions
3.2. Process Description for Understanding
4. Writing Procedures
4.1. How the Correct Choice Makes a Difference
4.2. Narrative Format
4.3. Step-By-Step List
4.4. Step-By-Step Visual Aids
4.5. Action-Response
4.6. Question List
4.7. Decision Tables
4.8. Flowchart
4.9. Narrative Flowchart
5. Writing Examples
5.1. Extended Examples
5.2. Short Examples
6. Conclusion

Chapter III covers:

III. Designing the Layout and Graphics
1. Allen-Bradley Design Standards
2. Headings
3. Layout and Use of White Space
4. Graphics
4.1 Labels
4.2 Illustrations
4.3 Diagrams
4.4 Tables
4.5 Typographic Highlights

We need not discuss Chapter IV, "Testing by User Edits," because Barry Jereb has covered it in his section on "Document Testing."

BEST COPY AVAILABLE

In Chapter V we dealt with the kinds of matters we considered in the workshop, discussed early in this paper, and in the vendor guidelines, a discussion of which follows.

Style Guidelines for Vendors

As Jereb has already explained, vendors and consultants produce documentation for the Systems Division which frequently must be integrated with the division's documentation. Even if it is used separately, Allen-Bradley wants to be sure that it is comprehensible. We produced, therefore, "Writing Style Guidelines for Vendors," the introduction and outline for which follows:

> Allen-Bradley's technical writers design and write performance-oriented manuals to serve their users' needs. They write manuals with the user in mind to show them how to work with the product, not merely how the product works. Basically, Allen-Bradley writers compose performance oriented manuals by:
>
> - helping the users picture themselves in the text
> - choosing words that the users can understand
> - writing clear, straightforward sentences
> - organizing the text for the user.
>
> Following is a list of twelve guidelines with examples. We suggest that you follow these guidelines to write your documents for our users.
>
> HELPING USERS PICTURE THEMSELVES IN THE TEXT
>
> 1: Address the reader directly, by name, or by using a pronoun.
>
> 2: Write in the active voice.
>
> 3: Use action verbs rather than nouns made out of verbs when you can.
>
> CHOOSING WORDS THAT THE USERS CAN UNDERSTAND
>
> 4: Choose your words with care. Avoid jargon. Define or explain technical terms that you cannot change.
>
> 5: Don't rename for the sake of variety.

BEST COPY AVAILABLE

BEST COPY AVAILABLE

6: Don't use extra words.

WRITING CLEAR, EASY-TO-FOLLOW SENTENCES

7: Put the parts of each sentence into logical order.

8: Untangle convoluted sentences.

9: Use lists when you have several items to discuss. Check that all items in the list have similar grammatical constructions.

10: Rewrite multiple negatives as positive sentences when you can.

11: Avoid noun strings.

ORGANIZING THE TEXT FOR THE USER

12: Think of your user when organizing text.

Accompanying the first eleven guidelines are examples: first, poorly worded originals, and then suggested revisions. The last guideline reads:

> Think of your users when organizing text.
>
> - Understand the needs of your users so you can position the users correctly in the text. Describe how they use the product, not merely how the product works.
> - Lay out and design information so users can read and use it easily.
> - Provide meaningful headings so users can find information easily.
> - Summarize information when appropriate so users can review important information.

And the guidelines conclude:

> Writing for users isn't easy. You need to think about what the users want to know and what they must know to do their job well. Think of what job the users will do, not what the product will do. This will help you gain a performance-orientation to writing. By following these guidelines, you will begin to compose manuals for the users. For more suggestions on how to write performance-oriented manuals directed to your users needs, ask to see Allen-Bradley's Publication Style Guide.

BEST COPY AVAILABLE

BEST COPY AVAILABLE

The technical writing supervisors are currently putting the finishing touches on the handbook to make sure it speaks to all the needs of the manual writers. When they have finished, Allen-Bradley will print the handbook and the supervisors will distribute it to their technical writers, run a workshop to instruct the writers in how to use it, and monitor the writing to be sure that the writers do use it.

Quality Control

To assist the Systems Division with quality control in the preparation of manuals, the Carnegie-Mellon Communications Design Center has been included in the manual-writing "loop." Graduate students sample sections of the drafts of new manuals and comment on any problems they find or suggest additions or revisions. The following form, which a graduate student fills out and attaches to each draft after sampling that draft, shows the kinds of things a reviewer looks for:

CDC Form for Evaluation of Technical Manuals

Name of Manual:_____

Publications Number:_____

Date Received:_____

Date Returned:_____

Name of Reviewer:_____

_____

Area reviewed	Revision required: Much	Some	None
DEFINITION OF AUDIENCE			
For manual	____	____	____
For chapter	____	____	____
CONTENT			
Table of contents	____	____	____

BEST COPY AVAILABLE

BEST COPY AVAILABLE

Definition of caution, warnings, notes	____	____	____
Glossary	____	____	____
Index	____	____	____
Completeness	____	____	____
Accuracy	____	____	____
ORGANIZATION			
USAGE AND STYLE			
Passive voice	____	____	____
Wordiness	____	____	____
Undefined terms	____	____	____
Noun strings	____	____	____
Parallelism	____	____	____
Consistency	____	____	____
Jargon	____	____	____
Punctuation	____	____	____
LAYOUT AND GRAPHICS			
Graphics with text	____	____	____
Graphic labels	____	____	____
Usefulness of graphics	____	____	____
PRODUCTION	____	____	____

The Seal of the Communications Design Center

To testify to the procedure, each new manual produced by Allen-Bradley's Systems Division will carry the seal of the Communications Design Center and the following statement:

> This seal means better documentation for you because this document has been written and tested according to guidelines developed by the Communications Design Center (CDC) of Carnegie-Mellon University (CMU) specifically for Allen-Bradley.
>
> The CDC periodically evaluates A-B's application of these guidelines; however, Allen-Bradley warrants that neither the CDC nor CMU nor any unit of the university in any way certifies the technical accuracy of the document. The CDC seal indicates solely that the CDC has approved the planning and testing of the organization, layout, and writing style of manuals and is evidence of Allen-Bradley's interest in serving its customers better through easy-to-understand documentation.

The seal thus attests to the procedure and not to the readability of any particular manual.

BEST COPY AVAILABLE

BEST COPY AVAILABLE

Footnotes

1. Claude E. Shannon and Warren Weaver, The Mathematical Theory of Communication (Urbana: University of Illinois Press, 1949), p. 5.

2. Harold D. Lasswell, "The Structure and Function of Communication in Society, in The Communication of Ideas, ed. Lyman Bryson (New York: Harper, 1948), p. 3.

3. Richard P. Kern, Thomas G. Sticht, Diana Welty, and Robert M. Hauke, Guidebook for the Development of Army Training Literature (Springfield, Va.: National Technical Information Service, U. S. Department of Commerce, 1975)

BEST COPY AVAILABLE

BEST COPY AVAILABLE